

## 400 Series Profile Rail Linear Guides

Transport grade ball profile rail system

## Features and Benefits

The 400 Series Profile Rail Linear Guide is the newest addition to the Thomson Linear Guide product line. The 400 Series is a cost effective, transport grade Profile Rail solution for cost-sensitive applications, and is a drop-in replacement with industry-standard envelope and hole patterns. Double-faced ball track bearing arrangements provide compliance during installation as well as equal load carrying capacity in all directions. Caged and non-caged carriages utilize the same rail design. This enables efficient use of inventory, as only one rail type needs to be stocked for either carriage type.

400 Series Ball/Caged Ball Assortment								
Width	Standard			Narrow				
Length		Long		Long		Long	Short	
Height					High	High		Compact
Designator	A	B	C	D	E	F	G	K
SIZE MM	15	•	•	•	•	•		•
	20	•	•	•		•	•	•
	25	•	•	•	•	•	•	•
	30	•	•	•	•	•	•	•
	35	•	•	•	•	•	•	•
	45	•	•	•	•	•	•	
	55	•	•	•	•	•	•	

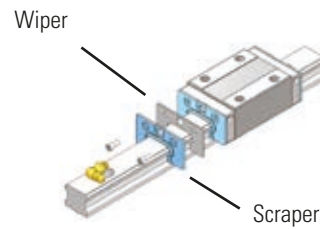
### Low Noise and Vibration

Polymer ball-return tube reduces noise while retaining lubrication.



### Modular Accessory Options

Standard double lip end and longitudinal seals retain lubrication while protecting the bearing from contamination. Additional seals and scrapers available.



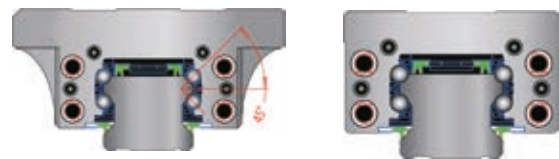
### Lubrication Channels

Channels direct lubricant to individual ball tracks to maximize lubrication effectiveness



### Double-Faced Ball Tracks

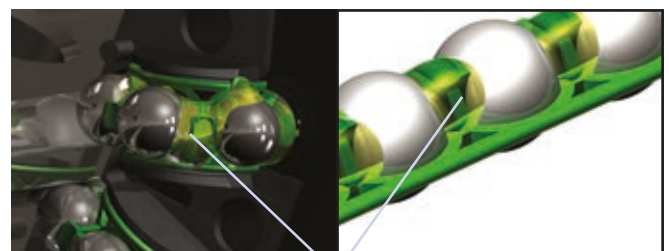
The 400 Series Linear Guide utilizes a 45°, face-to-face bearing arrangement, resulting in equal load-carrying capacity in all directions. The primary advantage of face-to-face configuration is that the rails are much more tolerant of mounting surface inaccuracies. This enables automation machine builders to reduce cost further by not having to prepare super-accurate mounting surfaces



### 400 Series Ball Cage

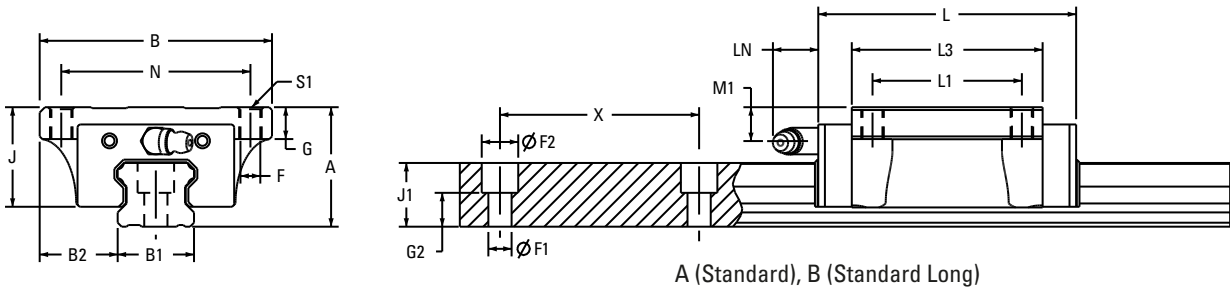
The 413 ball cage option provides:

- Increased running smoothness
- Low noise at high speeds
- Individual ball lubricant reservoirs



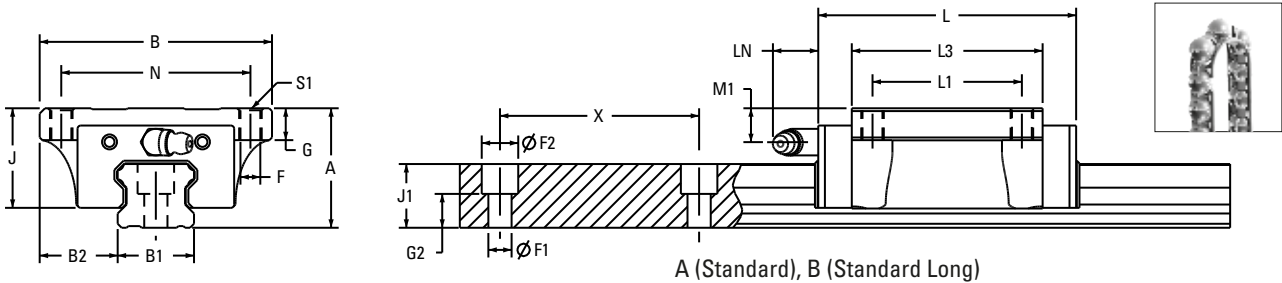
Lubricant

400 Series Specifications



411 Standard

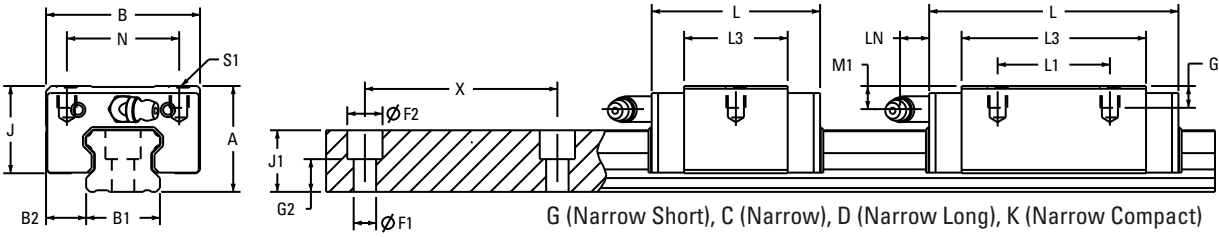
Item	Assembly [mm]				Carriage [mm]									Rail [mm]						Load Rating		Carriage Weight	Rail Weight
	A	B	B2	J	L	N	L1	S1	F	G	L3	Oil H	M1	LN	B1 +0.02 -0.05	J1	X	F1	F2	G2	C [N]	C0 [N]	[kg]
411N15A0	24	47	16.0	21.0	58.6	38	30	M5	4.4	8.0	40.2	M4 X 0.7	5.5 (5.0)	15	13.0	60	4.5	7.5	7.0	9,300	19,600	0.21	1.28
411N15B0	24	47	16.0	21.0	66.1	38	30	M5	4.4	8.0	47.7	M4 X 0.7	5.5 (5.0)	15	13.0	60	4.5	7.5	7.0	11,300	23,700	0.23	1.28
411N20A0	30	63	21.5	25.5	69.3	53	40	M6	5.4	9.0	48.5	M6 X 1.0	7.1 (15.6)	20	16.3	60	6.0	9.5	7.8	14,300	30,500	0.40	2.15
411N20B0	30	63	21.5	25.5	82.1	53	40	M6	5.4	9.0	61.3	M6 X 1.0	7.1 (15.6)	20	16.3	60	6.0	9.5	7.8	18,600	39,500	0.46	2.15
411N25A0	36	70	23.5	30.2	79.7	57	45	M8	7.0	10.0	57.5	M6 X 1.0	10.2 (15.6)	23	19.2	60	7.0	11.0	10.2	20,100	41,100	0.57	2.88
411N25B0	36	70	23.5	30.2	94.4	57	45	M8	7.0	10.0	72.2	M6 X 1.0	10.2 (15.6)	23	19.2	60	7.0	11.0	10.2	25,900	52,800	0.72	2.88
411N30A0	42	90	31.0	35.0	94.8	72	52	M10	8.6	11.0	67.8	M6 X 1.0	8 (15.6)	28	22.8	80	9.0	14.0	10.8	29,700	54,600	1.10	4.45
411N30B0	42	90	31.0	35.0	105.0	72	52	M10	8.6	11.0	78.0	M6 X 1.0	8 (15.6)	28	22.8	80	9.0	14.0	10.8	38,500	70,700	1.34	4.45
411N35A0	48	100	33.0	40.5	111.5	82	62	M10	8.6	12.0	80.5	M6 X 1.0	8 (16.0)	34	26.0	80	9.0	14.0	14.0	42,400	81,100	1.50	6.25
411N35B0	48	100	33.0	40.5	123.5	82	62	M10	8.6	12.0	92.5	M6 X 1.0	8 (16.0)	34	26.0	80	9.0	14.0	14.0	52,900	101,400	1.90	6.25
411N45A0	60	120	37.5	51.1	129.0	100	80	M12	10.6	15.5	94.0	M8 X 1.25	14.4 (16.0)	45	31.1	105	14.0	20.0	14.1	58,000	108,900	2.27	9.60
411N45B0	60	120	37.5	51.1	145.0	100	80	M12	10.6	15.5	110.0	M8 X 1.25	14.4 (16.0)	45	31.1	105	14.0	20.0	14.1	69,000	129,500	2.68	9.60
411N55A0	70	140	43.5	57.3	155.0	116	95	M14	12.6	18.5	116.0	M8 X 1.25	14.0 (16.0)	53	38.0	120	16.0	23.0	18.0	69,800	133,400	3.44	13.80
411N55B0	70	140	43.5	57.3	193.0	116	95	M14	12.6	18.5	154.0	M8 X 1.25	14.0 (16.0)	53	38.0	120	16.0	23.0	18.0	94,200	178,900	4.63	13.80



413 Standard (Caged)

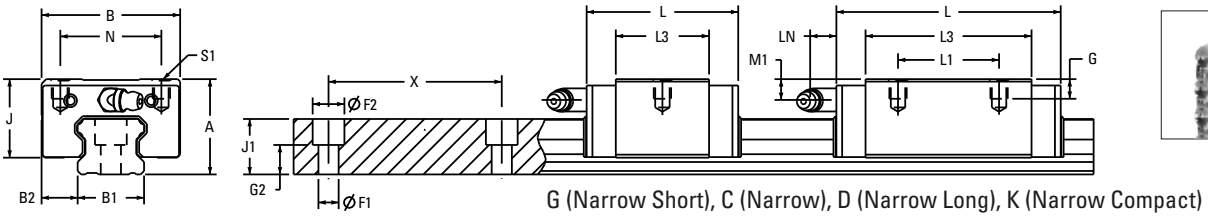
Item	Assembly [mm]				Carriage [mm]									Rail [mm]						Load Rating		Carriage Weight	Rail Weight
	A	B	B2	J	L	N	L1	S1	F	G	L3	Oil H	M1	LN	B1 +0.02 -0.05	J1	X	F1	F2	G2	C [N]	C0 [N]	[kg]
413N15A0	24	47	16.0	21.0	58.6	38	30	M5	4.4	8.0	40.2	M4 X 0.7	5.5 (5.0)	15	13.0	60	4.5	7.5	7.0	9,300	19,600	0.21	1.28
413N15B0	24	47	16.0	21.0	66.1	38	30	M5	4.4	8.0	47.7	M4 X 0.7	5.5 (5.0)	15	13.0	60	4.5	7.5	7.0	11,300	23,700	0.23	1.28
413N20A0	30	63	21.5	25.5	69.3	53	40	M6	5.4	9.0	48.5	M6 X 1.0	7.1 (15.6)	20	16.3	60	6.0	9.5	7.8	14,300	30,500	0.40	2.15
413N20B0	30	63	21.5	25.5	82.1	53	40	M6	5.4	9.0	61.3	M6 X 1.0	7.1 (15.6)	20	16.3	60	6.0	9.5	7.8	18,600	39,500	0.46	2.15
413N25A0	36	70	23.5	30.2	79.7	57	45	M8	7.0	10.0	57.5	M6 X 1.0	10.2 (15.6)	23	19.2	60	7.0	11.0	10.2	20,100	41,100	0.57	2.88
413N25B0	36	70	23.5	30.2	94.4	57	45	M8	7.0	10.0	72.2	M6 X 1.0	10.2 (15.6)	23	19.2	60	7.0	11.0	10.2	25,900	52,800	0.72	2.88
413N30A0	42	90	31.0	35.0	94.8	72	52	M10	8.6	11.0	67.8	M6 X 1.0	8 (15.6)	28	22.8	80	9.0	14.0	10.8	29,700	54,600	1.10	4.45
413N30B0	42	90	31.0	35.0	105.0	72	52	M10	8.6	11.0	78.0	M6 X 1.0	8 (15.6)	28	22.8	80	9.0	14.0	10.8	38,500	70,700	1.34	4.45
413N35A0	48	100	33.0	40.5	111.5	82	62	M10	8.6	12.0	80.5	M6 X 1.0	8 (16.0)	34	26.0	80	9.0	14.0	14.0	42,400	81,100	1.50	6.25
413N35B0	48	100	33.0	40.5	123.5	82	62	M10	8.6	12.0	92.5	M6 X 1.0	8 (16.0)	34	26.0	80	9.0	14.0	14.0	52,900	101,400	1.90	6.25
413N45A0	60	120	37.5	51.1	129.0	100	80	M12	10.6	15.5	94.0	M8 X 1.25	14.4 (16.0)	45	31.1	105	14.0	20.0	14.1	58,000	108,900	2.27	9.60
413N45B0	60	120	37.5	51.1	145.0	100	80	M12	10.6	15.5	110.0	M8 X 1.25	14.4 (16.0)	45	31.1	105	14.0	20.0	14.1	69,000	129,500	2.68	9.60
413N55A0	70	140	43.5	57.3	155.0	116	95	M14	12.6	18.5	116.0	M8 X 1.25	14.0 (16.0)	53	38.0	120	16.0	23.0	18.0	69,800	133,400	3.44	13.80
413N55B0	70	140	43.5	57.3	193.0	116	95	M14	12.6	18.5	154.0	M8 X 1.25	14.0 (16.0)	53	38.0	120	16.0	23.0	18.0	94,200	178,900	4.63	13.80

## 400 Series Specifications



### 411 Narrow

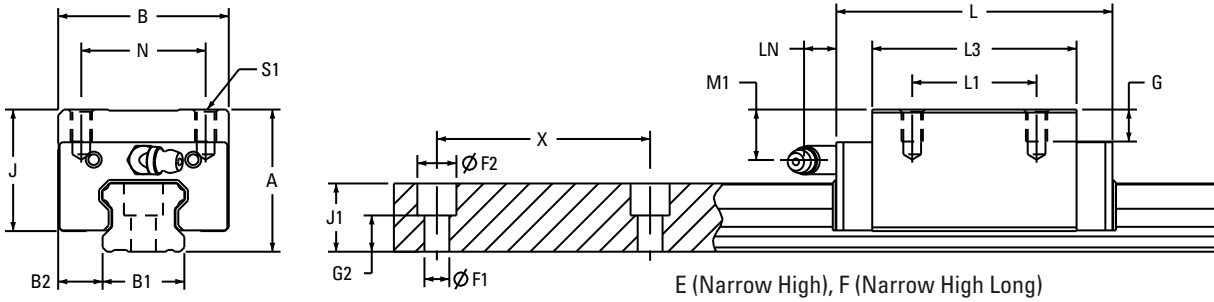
Item	Assembly [mm]				Carriage [mm]								Rail [mm]					Load Rating		Carriage Weight	Rail Weight		
	A	B	B2	J	L	N	L1	S1	G	L3	Oil H	M1	LN	B1 +0.2 -0.5	J1	X	F1	F2	G2	C [N]	C0 [N]	[kg]	[kg/m]
411N15G0	24	34	9.5	21.0	40.6	26	--	M4	4.8	22.2	M4 X 0.7	5.5	(5.0)	15	13.0	60	4.5	7.5	7.0	4,600	9,800	0.10	1.28
411N15C0	24	34	9.5	21.0	58.6	26	26	M4	4.8	40.2	M4 X 0.7	5.5	(5.0)	15	13.0	60	4.5	7.5	7.0	9,300	19,600	0.17	1.28
411N15D0	24	34	9.5	21.0	66.1	26	26	M4	4.8	47.7	M4 X 0.7	5.5	(5.0)	15	13.0	60	4.5	7.5	7.0	11,300	23,700	0.18	1.28
411N20G0	28	42	11.0	23.5	48.3	32	--	M5	5.5	27.5	M6 X 1.0	5.1	(15.6)	20	16.3	60	6.0	9.5	7.8	7,400	15,700	0.17	2.15
411N20C0	30	44	12.0	25.5	69.3	32	36	M5	6.5	48.5	M6 X 1.0	7.1	(15.6)	20	16.3	60	6.0	9.5	7.8	14,300	30,500	0.31	2.15
411N20K0	28	42	11.0	23.5	69.3	32	32	M5	5.5	48.5	M6 X 1.0	5.1	(15.6)	20	16.3	60	6.0	9.5	7.8	14,300	30,500	0.26	2.15
411N25G0	33	48	12.5	27.2	54.5	35	--	M6	6.8	32.3	M6 X 1.0	7.2	(15.6)	23	19.2	60	7.0	11.0	10.2	10,300	21,000	0.21	2.88
411N25C0	36	48	12.5	30.2	79.7	35	35	M6	9.0	57.5	M6 X 1.0	10.2	(15.6)	23	19.2	60	7.0	11.0	10.2	20,100	41,000	0.40	2.88
411N25D0	36	48	12.5	30.2	109.1	35	50	M6	9.0	86.9	M6 X 1.0	10.2	(15.6)	23	19.2	60	7.0	11.0	10.2	29,200	63,300	0.67	2.88
411N25K0	33	48	12.5	27.2	79.7	35	35	M6	6.8	57.5	M6 X 1.0	7.2	(15.6)	23	19.2	60	7.0	11.0	10.2	20,100	41,100	0.38	2.88
411N30G0	42	60	16.0	35.0	64.2	40	--	M8	10.0	37.2	M6 X 1.0	8.0	(15.6)	28	22.8	80	9.0	14.0	10.8	14,700	27,000	0.50	4.45
411N30C0	42	60	16.0	35.0	94.8	40	40	M8	10.0	67.8	M6 X 1.0	8.0	(15.6)	28	22.8	80	9.0	14.0	10.8	29,700	54,600	0.80	4.45
411N30D0	42	60	16.0	35.0	130.5	40	60	M8	10.0	103.5	M6 X 1.0	8.0	(15.6)	28	22.8	80	9.0	14.0	10.8	42,900	86,700	1.16	4.45
411N35G0	48	70	18.0	40.5	75.5	50	--	M8	10.0	44.5	M6 X 1.0	8.0	(15.6)	34	26.0	80	9.0	14.0	14.0	21,200	40,700	0.80	6.25
411N35C0	48	70	18.0	40.5	111.5	50	50	M8	10.0	80.5	M6 X 1.0	8.0	(15.6)	34	26.0	80	9.0	14.0	14.0	42,400	81,100	1.20	6.25
411N35D0	48	70	18.0	40.5	153.5	50	72	M8	10.0	122.5	M6 X 1.0	8.0	(15.6)	34	26.0	80	9.0	14.0	14.0	58,300	125,300	1.84	6.25
411N45C0	60	86	20.5	51.1	129.0	60	60	M10	15.5	94.0	M8 X 1.25	14.4	(16.0)	45	31.1	105	14.0	20.0	14.1	58,000	108,900	1.64	9.60
411N45D0	60	86	20.5	51.1	174.0	60	80	M10	15.5	110.0	M8 X 1.25	14.4	(16.0)	45	31.1	105	14.0	20.0	17.0	79,700	163,300	2.42	9.60
411N55C0	70	100	23.5	57.3	155.0	75	75	M12	18.0	116.0	M8 X 1.25	14.0	(16.0)	53	38.0	120	16.0	23.0	18.0	69,800	133,400	2.67	13.80
411N55D0	70	100	23.5	57.3	210.0	75	95	M12	18.0	171.0	M8 X 1.25	14.0	(16.0)	53	38.0	120	16.0	23.0	18.0	157,700	253,600	3.97	13.80



### 413 Narrow (Caged)

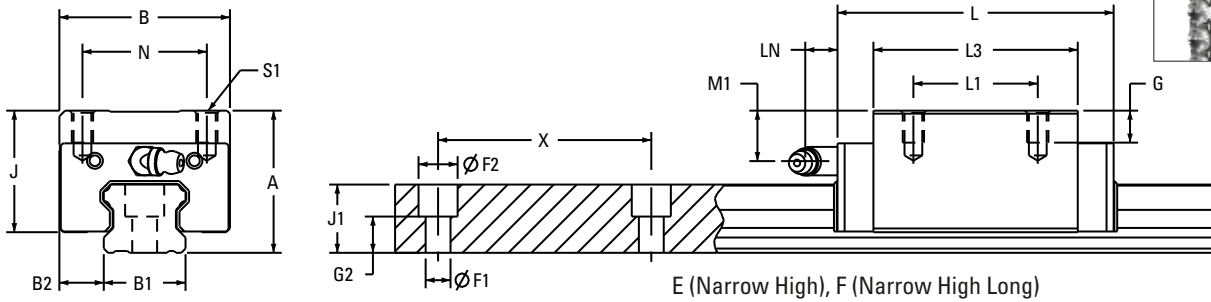
Item	Assembly [mm]				Carriage [mm]								Rail [mm]					Load Rating		Carriage Weight	Rail Weight		
	A	B	B2	J	L	N	L1	S1	G	L3	Oil H	M1	LN	B1 +0.2 -0.5	J1	X	F1	F2	G2	C [N]	C0 [N]	[kg]	[kg/m]
413N15G0	24	34	9.5	21.0	40.6	26	--	M4	4.8	22.2	M4 X 0.7	5.5	(5.0)	15	13.0	60	4.5	7.5	7.0	4,600	9,800	0.10	1.28
413N15C0	24	34	9.5	21.0	58.6	26	26	M4	4.8	40.2	M4 X 0.7	5.5	(5.0)	15	13.0	60	4.5	7.5	7.0	9,300	19,600	0.17	1.28
413N15D0	24	34	9.5	21.0	66.1	26	26	M4	4.8	47.7	M4 X 0.7	5.5	(5.0)	15	13.0	60	4.5	7.5	7.0	11,300	23,700	0.18	1.28
413N20G0	28	42	11.0	23.5	48.3	32	--	M5	5.5	27.5	M6 X 1.0	5.1	(15.6)	20	16.3	60	6.0	9.5	7.8	7,400	15,700	0.17	2.15
413N20C0	30	44	12.0	25.5	69.3	32	36	M5	6.5	48.5	M6 X 1.0	7.1	(15.6)	20	16.3	60	6.0	9.5	7.8	14,300	30,500	0.31	2.15
413N20K0	28	42	11.0	23.5	69.3	32	32	M5	5.5	48.5	M6 X 1.0	5.1	(15.6)	20	16.3	60	6.0	9.5	7.8	14,300	30,500	0.26	2.15
413N25G0	33	48	12.5	27.2	54.5	35	--	M6	6.8	32.3	M6 X 1.0	7.2	(15.6)	23	19.2	60	7.0	11.0	10.2	10,300	21,000	0.21	2.88
413N25C0	36	48	12.5	30.2	79.7	35	35	M6	9.0	57.5	M6 X 1.0	10.2	(15.6)	23	19.2	60	7.0	11.0	9.0	20,100	41,100	0.40	2.88
413N25D0	36	48	12.5	30.2	109.1	35	50	M6	9.0	86.9	M6 X 1.0	10.2	(15.6)	23	19.2	60	7.0	11.0	9.0	29,200	63,300	0.67	2.88
413N25K0	33	48	12.5	27.2	79.7	35	35	M6	6.8	57.5	M6 X 1.0	7.2	(15.6)	23	19.2	60	7.0	11.0	10.2	20,100	41,000	0.38	2.88
413N30G0	42	60	16.0	35.0	64.2	40	--	M8	10.0	37.2	M6 X 1.0	8.0	(15.6)	28	19.2	80	9.0	14.0	10.8	14,700	27,000	0.50	4.45
413N30C0	42	60	16.0	35.0	94.8	40	40	M8	10.0	67.8	M6 X 1.0	8.0	(15.6)	28	22.8	80	9.0	14.0	10.8	29,700	54,600	0.80	4.45
413N30D0	42	60	16.0	35.0	130.5	40	60	M8	10.0	103.5	M6 X 1.0	8.0	(15.6)	28	22.8	80	9.0	14.0	12.0	42,900	86,700	1.16	4.45
413N35G0	48	70	18.0	40.5	75.5	50	--	M8	10.0	44.5	M6 X 1.0	8.0	(15.6)	34	22.8	80	9.0	14.0	14.0	21,200	40,700	0.80	6.25
413N35C0	48	70	18.0	40.5	111.5	50	50	M8	10.0	80.5	M6 X 1.0	8.0	(15.6)	34	26.0	80	9.0	14.0	14.0	42,400	81,100	1.20	6.25
413N35D0	48	70	18.0	40.5	153.5	50	72	M8	10.0	122.5	M6 X 1.0	8.0	(15.6)	34	26.0	80	9.0	14.0	12.0	58,300	125,300	1.84	6.25
413N45C0	60	86	20.5	51.1	129.0	60	60	M10	15.5	94.0	M8 X 1.25	14.4	(16.0)	45	31.1	105	14.0	20.0	14.1	58,000	108,900	1.64	9.60
413N45D0	60	86	20.5	51.1	174.0	60	80	M10	15.5	139.0	M8 X 1.25	14.4	(16.0)	45	31.1	105	14.0	20.0	17.0	79,700	163,300	2.42	9.60
413N55C0	70	100	23.5	57.3	155.0	75	75	M12	18.0	116.0	M8 X 1.25	14.0	(16.0)	53	38.0	120	16.0	23.0	18.0	69,800	133,400	2.67	13.80
413N55D0	70	100	23.5	57.3	210.0	75	95	M12	18.0	171.0	M8 X 1.25	14.0	(16.0)	53	38.0	120	16.0	23.0	18.0	157,700	253,600	3.97	13.80

400 Series Specifications



411 Narrow High

Item	Assembly [mm]				Carriage [mm]								Rail [mm]					Load Rating		Carriage Weight	Rail Weight		
	A	B	B2	J	L	N	L1	S1	G	L3	Oil H	M1	LN	B1 +0.02 -0.05	J1	X	F1*	F2*	G2	C [N]	C0 [N]	[kg]	[kg/m]
411N15E0	28	34	9.5	21.0	58.6	26	26	M4	6.0	40.2	M4 X 0.7	9.5	(5.0)	15	13.0	60	4.5	7.5	7.0	9,300	19,600	0.19	1.28
411N20F0	30	44	12.0	25.5	82.1	32	50	M5	6.5	61.3	M6 X 1.0	7.1	(15.6)	20	16.3	60	6.0	9.5	7.8	18,600	39,500	0.36	2.15
411N25E0	40	48	12.5	34.2	79.7	35	35	M6	9.0	57.5	M6 X 1.0	14.2	(15.6)	23	19.2	60	7.0	11.0	10.2	20,100	41,100	0.45	2.88
411N25F0	40	48	12.5	34.2	94.4	35	50	M6	9.0	72.2	M6 X 1.0	14.2	(15.6)	23	19.2	60	7.0	11.0	10.2	25,900	52,800	0.66	2.88
411N30E0	45	60	16.0	38.0	94.8	40	40	M8	12.0	67.8	M6 X 1.0	11.0	(15.6)	28	22.8	80	9.0	14.0	10.8	29,700	54,600	0.91	4.45
411N30F0	45	60	16.0	38.0	105.0	40	60	M8	12.0	78.0	M6 X 1.0	11.0	(15.6)	28	22.8	80	9.0	14.0	10.8	38,500	70,700	1.04	4.45
411N35E0	55	70	18.0	47.5	111.5	50	50	M8	12.0	80.5	M6 X 1.0	15.0	(15.6)	34	26.0	80	9.0	14.0	14.0	42,400	81,100	1.50	6.25
411N35F0	55	70	18.0	47.5	123.5	50	72	M8	12.0	92.5	M6 X 1.0	15.0	(15.6)	34	26.0	80	9.0	14.0	14.0	52,900	101,400	1.80	6.25
411N45E0	70	86	20.5	61.1	129.0	60	60	M10	18.0	94.0	M8 X 1.25	24.4	(16.0)	45	31.1	105	14.0	20.0	14.1	58,000	108,900	2.28	9.60
411N45F0	70	86	20.5	61.1	145.0	60	60	M10	18.0	110.0	M8 X 1.25	24.4	(16.0)	45	31.1	105	14.0	20.0	14.1	69,000	129,500	2.67	9.60
411N55E0	80	100	23.5	67.3	155.0	75	75	M12	18.0	116.0	M8 X 1.25	14	(16.0)	53	38.0	120	16.0	23.0	18.0	69,800	133,400	3.42	13.80
411N55F0	80	100	23.5	67.3	193.0	75	75	M12	18.0	154.0	M8 X 1.25	14	(16.0)	53	38.0	120	16.0	23.0	18.0	94,200	178,900	5.08	13.80



413 Narrow High (Caged)

Item	Assembly [mm]				Carriage [mm]								Rail [mm]					Load Rating		Carriage Weight	Rail Weight		
	A	B	B2	J	L	N	L1	S1	G	L3	Oil H	M1	LN	B1 +0.02 -0.05	J1	X	F1*	F2*	G2	C [N]	C0 [N]	[kg]	[kg/m]
413N15E0	28	34	9.5	21.0	58.6	26	26	M4	6.0	40.2	M4 X 0.7	9.5	(5.0)	15	13.0	60	4.5	7.5	7.0	9,300	19,600	0.19	1.28
413N20F0	30	44	12.0	25.5	82.1	32	36	M5	6.5	61.3	M6 X 1.0	7.1	(15.6)	20	16.3	60	6.0	9.5	7.8	18,600	39,500	0.36	2.15
413N25E0	40	48	12.5	34.2	79.7	35	35	M6	9.0	57.5	M6 X 1.0	14.2	(15.6)	23	19.2	60	7.0	11.0	10.2	20,100	41,000	0.45	2.88
413N25F0	40	48	12.5	34.2	94.4	35	35	M6	9.0	72.2	M6 X 1.0	14.2	(15.6)	23	19.2	60	7.0	11.0	10.2	25,900	52,800	0.66	2.88
413N30E0	45	60	16.0	38.0	94.8	40	40	M8	12.0	67.8	M6 X 1.0	11.0	(15.6)	28	22.8	80	9.0	14.0	10.8	29,700	54,600	0.91	4.45
413N30F0	45	60	16.0	38.0	105.0	40	40	M8	12.0	78.0	M6 X 1.0	11.0	(15.6)	28	22.8	80	9.0	14.0	10.8	38,500	70,700	1.04	4.45
413N35E0	55	70	18.0	47.5	111.5	50	50	M8	12.0	80.5	M6 X 1.0	15.0	(15.6)	34	26.0	80	9.0	14.0	14.0	42,400	81,100	1.50	6.25
413N35F0	55	70	18.0	47.5	123.5	50	50	M8	12.0	92.5	M6 X 1.0	15.0	(15.6)	34	26.0	80	9.0	14.0	14.0	52,900	101,400	1.80	6.25
413N45E0	70	86	20.5	61.1	129.0	60	60	M10	18.0	94.0	M8 X 1.25	24.4	(16.0)	45	31.1	105	14.0	20.0	14.1	58,000	108,900	2.28	9.60
413N45F0	70	86	20.5	61.1	145.0	60	60	M10	18.0	110.0	M8 X 1.25	24.4	(16.0)	45	31.1	105	14.0	20.0	14.1	69,000	129,500	2.67	9.60
413N55E0	80	100	23.5	67.3	155.0	75	75	M12	18.0	116.0	M8 X 1.25	14	(16.0)	53	38.0	120	16.0	23.0	18.0	69,800	133,400	3.42	13.80
413N55F0	80	100	23.5	67.3	193.0	75	75	M12	18.0	154.0	M8 X 1.25	14	(16.0)	53	38.0	120	16.0	23.0	18.0	94,200	178,900	5.08	13.80

\*Note: Mounting hole dimensions of 411 and 413 F Style carriages are different.

## Accuracy Class

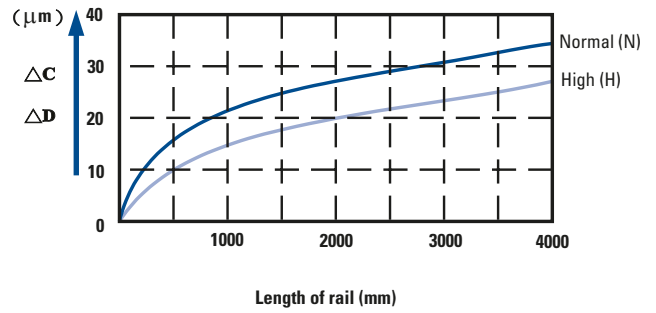
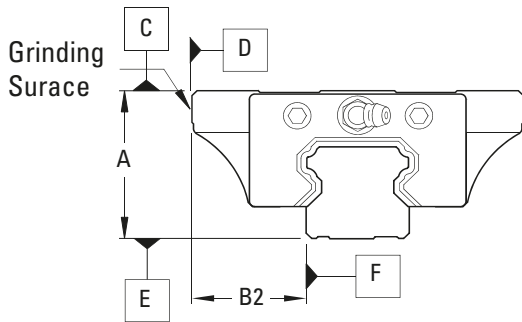
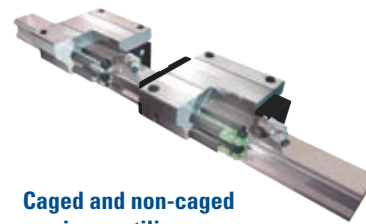


Fig. 1-1 400 Series rail length and running parallelism

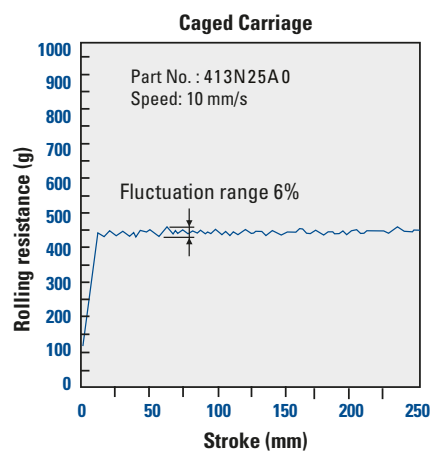
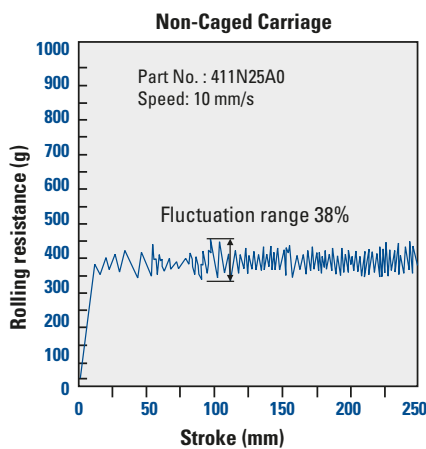
Grade	Normal (N)	High (H)
Item		
Height Tolerance (A)	± 0.1	± 0.04
Width Tolerance (B2)	± 0.1	± 0.04
Pair variation max ( $\Delta A$ )	0.03	0.02
Pair variation max ( $\Delta B2$ )	0.03	0.02
Running parallelism of carriage surface C with respect to surface E.	$\Delta C$ refer to Fig. 1-1	
Running parallelism of carriage surface D with respect to surface F.	$\Delta D$ refer to Fig. 1-1	

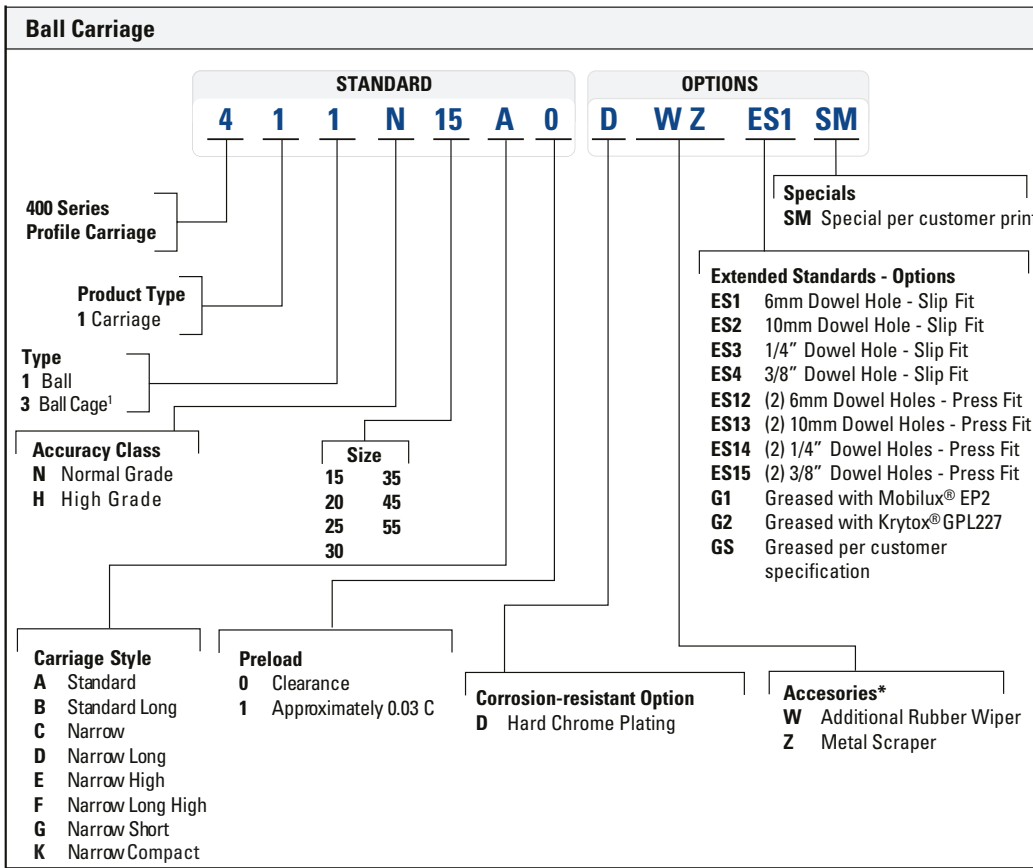
All items in mm.



**Caged and non-caged carriages utilize same rail design**

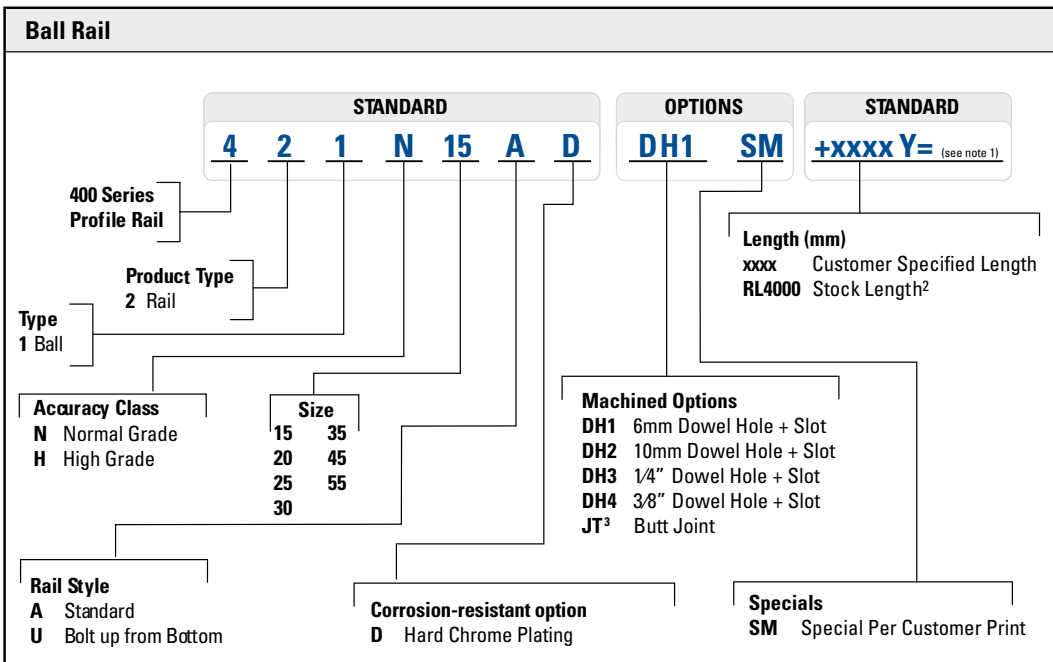
## 413 Caged Ball Carriage Increased Running Smoothness





1. Carriage does not retain ball bearings when end cap is removed. Removal of end caps can result in loss of ball bearings.

\* Long life lube block and bellows may be available as options if desired, based on the opportunity. Please contact Customer Support for more details.



1. Y = Distance from end of rail to center of first mounting hole, Y1 = Y2 unless specified.

2. Stock length of rails are considered random length, total length may exceed specified length, and Y1/Y2 are not equal. To be used only by customer who will cut to length.

3. Customer drawing required at time of quote and order.

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